## LISTING OF THE CLAIMS

The following is a listing of claims in the application.

**LISTING OF CLAIMS**

1. (Cancelled)

2. (Previously presented) An engine control system for controlling transitions between activated and deactivated modes in a displacement on demand engine, the control system comprising:

an engine intake manifold sensor that generates an intake manifold vacuum signal;

an engine speed sensor that generates an engine speed signal; and

a controller that calculates a reference pressure window based on said engine speed signal, that transitions the engine from the activated mode to the deactivated mode when said intake manifold vacuum signal is greater than an upper limit of said reference pressure window, and that transitions the engine from the deactivated mode to the activated mode when said intake manifold vacuum is lower than a lower limit of said reference pressure window, where the engine includes a first throttle in communication with a first set of cylinders and a second throttle in communication with a second set of cylinders, wherein transitioning the engine from the activated mode to the deactivated mode includes closing said first throttle and opening said second throttle.

3. (Original) The engine control system of claim 2 wherein the engine includes an intake manifold having first and second passageways, said first passageway being separated from said second passageway and in communication with said first set of cylinders.

4. (Original) The engine control system of claim 3 wherein said engine intake manifold sensor is in communication with said first passageway, said control system further including a second intake manifold sensor in communication with said second passageway.

5. (Previously Presented) The engine control system of claim 2 wherein said upper limit of said reference pressure window equals said lower limit of said reference pressure window.

6. (Original) The engine control system of claim 2 wherein said first and second throttles are moved at a predetermined rate.

7. (Original) The engine control system of claim 6 wherein the rate of movement of said first throttle substantially equals the rate of movement of said second throttle.

8. (Original) The engine control system of claim 7 wherein the rate of moving said throttles is approximately 20% per second when transitioning from the activated mode to the deactivated mode.

9. (Original) The engine control system of claim 2 wherein a fuel supply to said first throttle is discontinued after said first throttle is closed.

10. (Previously Presented) An engine control system for controlling transitions between activated and deactivated modes in a displacement on demand engine, the control system comprising:

an engine intake manifold sensor that generates an intake manifold vacuum signal;

an engine speed sensor that generates an engine speed signal; and

a controller that calculates a reference pressure window based on said engine speed signal, that transitions the engine from the activated mode to the deactivated mode when said intake manifold vacuum signal is greater than an upper limit of said reference pressure window, and that transitions the engine from the deactivated mode to the activated mode when said intake manifold vacuum is lower than a lower limit of said reference pressure window, wherein the engine includes a first throttle in communication with a first set of cylinders and a second throttle in communication with a second set of cylinders, wherein transitioning the engine from the deactivated mode to the activated mode includes opening said first throttle and closing said second throttle.

11. (Original) The engine control system of claim 10 wherein said controller is operable to initiate the delivery of fuel to previously deactivated cylinders at an idle rate when transitioning from the deactivated mode to the activated mode.

12. (Original) A method for controlling transitions between activated and deactivated modes in a displacement on demand engine having first and second throttles supplying fuel to first and second sets of cylinders, the method comprising:

determining a reference pressure window;

comparing an intake manifold vacuum to the pressure window; and

transitioning from the activated to the deactivated mode when the manifold vacuum is greater than the upper limit of the pressure window, wherein the step of transitioning includes closing the first throttle and opening the second throttle.

13. (Original) The method of claim 12 wherein the step of determining a reference pressure window includes determining an engine speed.

14. (Original) The method of claim 13 wherein the rate of closing the first throttle is substantially equal to the rate of opening the second throttle.

15. (Original) The method of claim 14 further including closing the first throttle and opening the second throttle at a rate of approximately 20 percent per second when transitioning from the activated to the deactivated mode.

16. (Original) The method of claim 15 further including discontinuing a supply of fuel to the first set of cylinders after the first throttle is closed.

17. (Original) The method of claim 12 further including transitioning from the deactivated mode to the activated mode when the manifold vacuum is less than the lower limit of the pressure window.

18. (Original) The method of claim 17 further including initiating the activation of deactivated cylinders by supplying fuel to the deactivated cylinders at an idle rate.

19. (Original) The method of claim 17 further including opening the first throttle and closing the second throttle to maintain a substantially constant torque output.

20. (Original) The method of claim 19 further including continuing to open the first throttle and close the second throttle until the throttle positions are substantially equal.

21. (Original) The method of claim19 wherein the first throttle is opened at a rate of approximately 40 percent per second.

22. (Original) The method of claim 12 further including a third throttle supplying fuel to a third set of cylinders wherein said first, second and third sets of cylinders do not contain a common cylinder.

23. (Previously Presented) An engine control system for controlling transitions between activated and deactivated modes in a displacement on demand engine, the control system comprising:

an engine intake manifold sensor that generates an intake manifold vacuum signal;

an engine speed sensor that generates an engine speed signal; and

a controller that calculates a reference pressure window based on said engine speed signal, that transitions the engine from the activated mode to the deactivated mode when said intake manifold vacuum signal is greater than an upper limit of said reference pressure window, and that transitions the engine from the deactivated mode to the activated mode when said intake manifold vacuum is lower than a lower limit of said reference pressure window, where the engine includes a first throttle in communication with a first set of cylinders and a second throttle in communication with a second set of cylinders, wherein transitioning the engine from the activated mode to the deactivated mode includes closing said first throttle to decrease the power output from the first set of cylinders and opening said second throttle to increase the power output from the second set of cylinders, wherein the total power output from the engine remains substantially constant during transitions between the activated and deactivated modes.